

## **First Records of Two Apogonid Fishes (Perciformes: *Apogon*) from Korea, with a Key to *Apogon* Species**

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### **ABSTRACT**

Two species of apogonid fishes, *Apogon endekataenia* Bleeker and *A. notatus* Houttuyn, were recently collected from coastal water in Cheju Island, Korea. These species are redescribed and figured here as new to Korea. A key to nine species of the genus *Apogon* from Korea is presented.

Key words: *Apogon*, apogonid fishes, key, Korea

### **INTRODUCTION**

The previous records of the family Apogonidae of Korea were those of Mori (1952) and Chyung (1977) who listed 8 species of 3 genera from Korea. Since then this family in Korea has not been well known until now except for a new record of *Gymnapogon japonicus* by Kim and Lee (1994) from Cheju Island. But, among them, *Synagrops japonicus* was transferred to the family Acropomatidae and the genus *Apogonichthys* was regarded as a synonym of *Apogon* (Lindberg and Krasnyukova, 1969; Hayashi, 1984; 1994). Therefore, apogonid fishes of Korea comprise 10 species belong to 2 genera, including 2 new record, in the present study. Among them, 9 species belong to the genus *Apogon*. *Apogon*, belonging to the family Apogonidae of Perciformes, is widely distributed in the tropical and subtropical seas of the world (Nelson, 1994), and contains roughly 110 species (Fraser and Struhsaker, 1991), in which 48 species were recorded in Japan (Hayashi, 1994).

The purpose of the present paper is to redescribe two *Apogon* species new to Korea and provide a key to the genus *Apogon* of Korea.

## MATERIALS AND METHODS

Counts and measurements are adopted from Hubbs and Lagler (1964) with minor modifications. Body depth was taken from the dorsal fin origin to the pelvic fin base. All measurements were made with dial calipers and expressed in millimeters. Gill raker was counted exclusive of rudiments. Vertebral counts and rudimentary fins were from radiographs. The specimens examined were collected from off Sögwip'o, Cheju Island on 24 May, 1995 using gill net (Jaridom dülmang). Specimens are deposited at the Department of Biology, Chonbuk National University, Chonju, Korea (CNUC).

## DESCRIPTIONS

Family Apogonidae 동갈돔과

Genus *Apogon* Lacepède 동갈돔속

### ***Apogon endekataenia* Bleeker, 1852 줄동갈돔 (Fig. 1A)**

(New Korean name: Jul-donggaldom)

*Apogon endekataenia* Bleeker, 1852, p. 449 (type locality: Banka, Indonesia).

**Material examined.** 1 specimen, CNUC 21155, 102.1 mm in standard length, Cheju-do, Sögwip'o-shi, Pomok, 14 May 1995.

**Description.** Meristic counts: dorsal fin rays VII-I, 9; anal fin rays II, 8; pectoral fin rays 14; pelvic fin rays I, 5; vertebrae 10+14; lateral line scales 27; predorsal scales 3; gill rakers on first arch 2+1+9 (4+1+11 include rudiments).

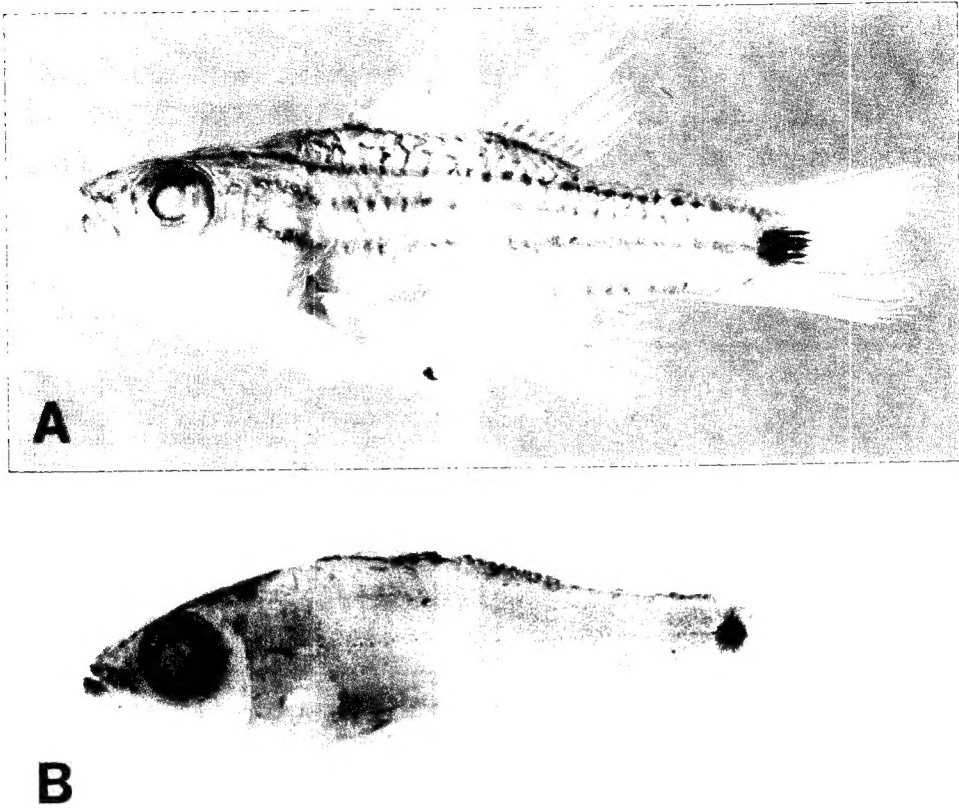
Proportions of measurements as a percentage of standard length: body depth 35.3%; head length 37.7%; predorsal length 37.5%; preanal length 66.9%; eye diameter 12.6%; snout length 9.4%; interorbital width 9.3%; upper jaw length 17.1%; caudal peduncle length 24.3%; caudal peduncle depth 14.3%; first dorsal spine length 3.4%; second dorsal spine length 7.6%; third dorsal spine length 14.9% (broken); first dorsal soft-ray length 24.2%; second anal spine length 11.5%; second anal soft-ray length 18.9%; pectoral fin length 23.0%; pelvic fin length 21.2%.

**Color.** In life: Ground color of body and fins light orange with seven longitudinal stripes of dark orange; a fine large black spot on posterior caudal base.

In 10% formalin: Body and fins yellowish pale with seven dark brown longitudinal stripes present from dorsal fin base to abdomen; first and second stripes short, extending behind origin of dorsal fin; third and sixth stripes long, extending to caudal fin; fourth stripe extending to center of caudal peduncle; fifth stripe extending nearly to caudal spot; seventh stripe extending to end of anal fin; soft dorsal and anal fin base pale brown; large round caudal spot on posterior caudal base.

**Distribution.** Cheju Island (Sögwip'o) of Korea, Japan, Taiwan, Borneo, Thailand, western Indian and the Pacific (Fraser, 1974; Hayashi, 1994).

**Remarks.** *A. endekataenia* is similar to *A. doederleini* in the color pattern and the morphological characters, but *A. endekataenia* has 7 longitudinal stripes on the body sides (versus 4 in *A.*



**Fig. 1.** A, *Apogon endekataenia*, 102.1 mm SL, CNUC 21155, Sögwip'o; B, *Apogon notatus*, 44.1 mm SL, CNUC 21158, Sögwip'o.

*doederleini*), posterior position and large size of basicaudal spot, and 3 predorsal scales (versus 4 in *A. doederleini*). The specimen of *A. endekataenia* in the present study agrees well with the original description of Bleeker (1852), and records from China (Fowler, 1937) and Japan (Hayashi, 1994).

***Apogon notatus* Houttuyn, 1782 점동갈돔 (Fig. 1B)**

(New Korean name: Jö-m-dong-galdom)

*Sparus natatus* Houttuyn, 1782, p. 320 (type locality: Nagasaki, Japan) (cited from Jordan and Snyder, 1901).

*Apogon natatus*: Jordan and Snyder, 1901, p. 904 (Nagasaki, Wakanoura).

**Material examined.** 1 specimen, CNUC 21158, 44.1 mm in standard length, Cheju-do, Sögwip'o-shi, Pomok, 14 May 1995.

**Description.** Meristic counts: dorsal fin rays VII-I, 9; anal fin rays II, 8; pectoral fin rays 15; pelvic fin rays I, 5; vertebrae 10+14; lateral line scales 27; predorsal scales 2; gill rakers on first arch 7+1+20.

Proportions of measurements as a percentage of standard length: body depth 27.0%; head length 35.8%; predorsal length 38.5%; preanal length 61.8%; eye diameter 12.5%; snout length 9.4%; interorbital width 9.1%; upper jaw length 17.9%; caudal peduncle length 25.8%; caudal peduncle

depth 11.8%; first dorsal spine length 4.5%; second dorsal spine length 11.3%; third dorsal spine length 15.0%; first dorsal soft-ray length 22.4%; second anal spine length 13.2%; second anal soft-ray length 21.3%; pectoral fin length 24.7%; pelvic fin length 21.1%.

**Color.** In 10% formalin: Body and fins pale without longitudinal stripes; dusky brown bar from mandible tip along side of snout to eye; soft dorsal and anal fin base pale brown; a black spot on caudal base; a pair of black spots on upper part behind head; tip of lower jaw black.

**Distribution.** Cheju Island (Sögwip'ö) of Korea, Japan, Taiwan and the Philippines (Fowler and Bean, 1930).

**Remarks.** The color pattern of *A. notatus* is quite similar to that of *A. semilineatus* especially in juveniles, but *A. notatus* is distinguished from *A. semilineatus* by the absence of the stripe on body, having the black spots at the tip of lower jaw, a pair of black spots on the nape, and having 2 predorsal scales (versus 5 in *A. semilineatus*). A specimen of *A. notatus* in the present study agrees well with the original description (Jordan and Snyder, 1901) and records from China, the Philippines, Japan and Taiwan (Fowler and Bean, 1930; Hayashi, 1994).

### Key to the species of *Apogon* from Korea

- 1a. Caudal fin rounded, not emarginate ..... 2
- 1b. Caudal fin emarginate or forked ..... 4
- 2a. Second dorsal fin with large black white edge ocellus ..... *A. carinatus*
- 2b. Second dorsal fin without ocellus ..... 3
- 3a. Body with 8-12 narrow transverse band on the side, body and all fins light color ..... *A. lineatus*
- 3b. Body without distinct band on the side, body and all fins dark except for yellowish caudal and pectoral ..... *A. niger*
- 4a. First dorsal 6 spines ..... *A. kiensis*
- 4b. First dorsal 7 spines ..... 5
- 5a. No longitudinal stripes on body sides ..... *A. notatus*
- 5b. Have longitudinal stripes on each sides, ..... 6
- 6a. Two blackish longitudinal stripes with body side; first stripe not extend beyond end of second dorsal; two stripe reaches to end of operculum ..... *A. semilineatus*
- 6b. Four to seven longitudinal stripes with body side, extend from head to caudal fin or almost to caudal fin ..... 7
- 7a. Four longitudinal stripes on body; all stripes not extend on caudal fin ..... *A. doederleini*
- 7b. Five to seven longitudinal stripes on body; some stripes extend on caudal fin ..... 8
- 8a. Five longitudinal stripes; midbody stripe across eye and confluent with caudal spot ..... *A. cookii*
- 9b. Seven longitudinal stripes; midbody stripe across eye and not confluent with caudal spot ..... *A. endekataenia*

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### 요 약

한국산 동갈돔과 어류 중 가장 많은 종이 포함된 동갈돔속 어류 중에 지금까지 우리나라에 기록된 적이 없는 *Apogon endekataenia* Bleeker와 *A. notatus* Houttuyn 2종이 제주도의 서귀포 연안에서 채집되었다. 이들 2종의 국명은 *A. endekataenia*는 줄동갈돔, *A. notatus*는 점동갈돔으로 하고, 이들의 계수·계측 형질을 사진과 함께 기재하였다. 그리고 두 종을 포함하여 한국에서 기록된 동갈돔속 9종의 검색표를 함께 제시하였다.